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WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION
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IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

CROSSROADS SYSTEMS, INC.,
Plaintiff,

-vs-

Case No. A-13-CA-800-SS

DOT HILL SYSTEMS CORP.,
Defendant.

CROSSROADS SYSTEMS, INC.,
Plaintiff,

-vs-

Case No. A-13-CA-895-SS

ORACLE CORPORATION,
Defendant.

CROSSROADS SYSTEMS, INC.,
Plaintiff,

-vs-

Case No. A-13-CA-1025-SS

HUAWEI TECHNOLOGIES CO. LTD.;
HUAWEI ENTERPRISE USA INC.; and
HUAWEI TECHNOLOGIES USA INC.,
Defendants.

CROSSROADS SYSTEMS, INC.,
Plaintiff,

-vs-

Case No. A-14-CA-148-SS

CISCO SYSTEMS, INC.,
Defendant.

CROSSROADS SYSTEMS, INC.,
Plaintiff,

-vs-

Case No. A-14-CA-149-SS

NETAPP, INC.,
Defendant.

CROSSROADS SYSTEMS, INC.,
Plaintiff,

-vs-

Case No. A-14-CA-150-SS

QUANTUM CORPORATION,
Defendant.

CONSOLIDATED MARKMAN ORDER

BE IT REMEMBERED on this day the Court reviewed the file in the above-styled causes, and specifically Plaintiff Crossroads Systems, Inc. (Crossroads)'s Opening Claim Construction Brief [#82];¹ Defendants Dot Hill Systems Corp., Oracle Corporation, Huawei Technologies Co. Ltd., Huawei Enterprise USA, Inc., Huawei Technologies USA, Inc., Cisco Systems, Inc., NetApp, Inc., and Quantum Corporation (collectively, Defendants)'s Joint Opening Claim Construction Brief [#83]; Defendant NetApp, Inc. (NetApp)'s Additional Opening Claim Construction Brief [#69]; Crossroads' Reply Claim Construction Brief [#87]; Defendants' Reply Claim Construction Brief [#90]; NetApp's Additional Reply Claim Construction Brief [#91]; the parties' Joint Proposed Claim

¹ Defendants have generally made joint filings with respect to the pre- and post-*Markman* briefing, and for ease of reference, the Court uses the docket entry numbers reflected in the first-filed case, case number 1:13-CV-800-SS (the Dot Hill Case). The only defendant to make its own separate filings with respect to the pre- and post-*Markman* briefing is NetApp, Inc. While NetApp, Inc. joined the other defendants in the joint filings, it also filed a group of briefs related to an indefiniteness question. Where NetApp, Inc. filed its own additional briefs, the Court refers to the docket entry numbers reflected in case number 1:14-CV-149-SS (the NetApp Case).

Constructions [#92]; Crossroads' Opening Post-*Markman* Brief [#100]; Defendants' Opening Post-*Markman* Brief [#101]; NetApp's Additional Opening Post-*Markman* Brief [#88]; Crossroads' Responsive Post-*Markman* Brief [#103]; Defendants' Responsive Post-*Markman* Brief [#102]; NetApp's Additional Responsive Post-*Markman* Brief [#91]; the Report and Recommendation (R&R) of the Special Master [#105]; Crossroads' Objections [#111]; Defendants' Objections [#110]; Crossroads' Response to Defendants' Objections [#117]; and Defendants' Response to Crossroads' Objections [#118]. Having reviewed the documents, the governing law, the arguments of the parties at the *Markman* hearing, and the file as a whole, the Court now enters the following opinion and orders.

Background

This case is a patent infringement suit brought by Crossroads against Defendants. At issue are four patents: (1) United States Patent No. 6,425,035 (the '035 Patent); (2) United States Patent No. 7,934,041 (the '041 Patent); (3) United States Patent No. 7,051,147 (the '147 Patent); and (4) United States Patent No. 7,987,311 (the '311 Patent).² All four patents are titled "Storage Router and Method for Providing Virtual Local Storage," and they all are continuations of United States Patent No. 5,941,972 (the '972 Patent).³ The invention of the patents-in-suit is a storage router that provides virtual local storage to hosts. The virtual local storage appears to a host to be within, or

² Crossroads asserts the '035 Patent against Dot Hill Systems, Inc.; the '035, '147, and '041 Patents against Oracle Corporation, Huawei Technologies Co., Ltd., Huawei Enterprise USA, Inc., Huawei Technologies USA, Inc., Cisco Systems, Inc., and Quantum Corporation; and the '035, '147, '041, and '311 Patents against NetApp, Inc.

³ As described by Crossroads, the primary difference between the patents is the parent '972 Patent claims specifically recite that the first transport medium is Fibre Channel and the second transport medium is Small Computer System Interface (SCSI), the '147 Patent claims specifically recite that both transport media are Fibre Channel, and the '035 Patent claims do not recite any protocol limitations on the first and second transport media. *See* Crossroads' Opening Claim Construction Br. [#82] at 1 n.1. Similarly, the '311 Patent and the '041 Patent do not recite any protocol limitations on the first and second transport media, but the claims are different in the three "any-to-any" patents. *Id.* The majority of the claim terms at issue are identical between the patents-in-suit. *Id.*

locally connected to, the host even though the storage space is actually in a remote storage device. Because the virtual local storage appears as local storage to a host, the host will access the virtual local storage in the same manner as local storage, using native low level block protocols (NLLBPs). The storage router can therefore allow access to storage using the NLLBP received from the host. The storage router uses a map to allocate storage to associated hosts so that hosts have controlled access to the storage specified in the map.

The Court has previously encountered this family of patents on multiple occasions and actually construed many of the claim terms at issue in the present case in those previous encounters. First, the Court construed the '972 Patent in *Crossroads Systems, (Texas), Inc. v. Chaparral Network Storage, Inc.*, No. A-00-CA-217-SS (W.D. Tex. 2000) (the *Chaparral* Litigation). Second, the Court construed the '972 Patent and the '035 Patent in *Crossroads Systems, (Texas), Inc. v. Dot Hill Systems Corporation*, No. A-03-CA-754-SS (W.D. Tex. 2003) (the *Dot Hill* Litigation). Third, the Court construed the '035 Patent in *Crossroads Systems, Inc. v. 3Par, Inc.*, No. 1:10-CV-652-SS (W.D. Tex. 2010) (the *3Par* Litigation). In the *3Par* Litigation, Special Master Karl Bayer (also appointed in the present case) issued a Report and Recommendation regarding the '147 Patent, but because the claims relating to that patent were dismissed prior to the Court's *Markman* order, the Court did not consider the proposed constructions relating to the '147 Patent. While they do not have preclusive effect, the Court's previous constructions are highly persuasive in the present case, especially where there is no new argument or evidence to justify a change in position. See *Collegenet, Inc. v. XAP Corp.*, No. CV-03-1229, 2004 WL 2429843, at *6 (D. Or. Oct. 29, 2004) ("[T]o the extent neither party raises new arguments, I defer to the prior claim constructions . . . and even in the presence of new arguments . . . give 'considerable weight' to my previous claim

constructions”)(citing *KX Indus., L.P. v. PUR Water Purification Prods., Inc.*, 108 F. Supp. 2d 380, 387 (D. Del. 2000), *aff’d*, 18 F. App’x 871 (Fed. Cir. 2001) (unpublished)).

The Court, through Special Master Bayer, held the *Markman* hearing on October 6–7, 2014. The Special Master issued his Report and Recommendation on claim construction on February 23, 2015. To the extent the parties have made specific objections to the Special Master’s factual findings or legal conclusions, they are entitled to de novo review of those findings and conclusions. FED. R. CIV. P. 53(f).

Analysis

I. Claim Construction—Legal Standard

When construing claims, courts begin with “an examination of the intrinsic evidence, i.e., the claims, the rest of the specification and, if in evidence, the prosecution history.” *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002); *see also Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1327 (Fed. Cir. 2001).

The words in the claims themselves are of primary importance in the analysis, as the claim language in a patent defines the scope of the invention. *SRI Int’l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (en banc). The words of a claim “are generally given their ordinary and customary meaning.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.”⁴ *Id.* at 1313. The inquiry into how a person of ordinary skill in the art

⁴ This hypothetical person is now commonly referred to simply as an “ordinarily skilled artisan.” E.g., *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 711 F.3d 1348, 1365–66 (Fed. Cir. 2013).

understands a claim term provides an “objective baseline” from which to begin claim interpretation. *Id.* The person of ordinary skill in the art is understood to read a claim term not only in the context of the particular claim in which the term appears, but in the context of the entire patent, including the specification; thus, both the plain language of the claims and the context in which the various terms appear “provide substantial guidance as to the meaning of particular claim terms.” *Id.* at 1314.

The specification also plays a significant role in the analysis. *Id.* at 1315. The Federal Circuit has repeatedly reaffirmed the principle that the specification “is always highly relevant Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Id.* (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). In interpreting the effect the specification has on the claim limitations, however, courts must pay special attention to the admonition that one looks “to the specification to ascertain the meaning of the claim term as it is used by the inventor in the context of the entirety of his invention, and not merely to limit a claim term.” *Interactive Gift*, 256 F.3d at 1332 (internal quotation marks and citations omitted).

The final form of intrinsic evidence the Court may consider is the prosecution history. Although the prosecution history “represents an ongoing negotiation between the PTO and the applicant” and therefore “often lacks the clarity of the specification and thus is less useful for claim construction purposes,” it can nonetheless “often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” *Phillips*, 415 F.3d at 1317.

Aside from the intrinsic evidence, the Court may also consult “extrinsic evidence,” which is “all evidence external to the patent and prosecution history, including expert and inventor

testimony, dictionaries, and learned treatises.” *Id.* While extrinsic evidence “can shed useful light on the relevant art,” the Federal Circuit has explained it is “less significant than the intrinsic record in determining ‘the legally operative meaning of claim language.’” *Id.* at 1317 (quoting *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)). Extrinsic evidence in the form of expert testimony may be useful to a court for “a variety of purposes, such as to provide background on the technology at issue, to explain how an invention works, to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art, or to establish that a particular term in the patent or the prior art has a particular meaning in the pertinent field.” *Id.* at 1318. However, conclusory, unsupported assertions by an expert as to the definition of a claim term are not useful, and should be discounted. *Id.* In general, extrinsic evidence is considered “less reliable than the patent and its prosecution history in determining how to read claim terms,” although it may be helpful. *Id.*

The purpose of claim construction is to “[d]etermin[e] the meaning and scope of the patent claims asserted to be infringed.” *02 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008) (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995), *aff’d*, 517 U.S. 370 (1996)). Thus, “[w]hen the parties raise an actual dispute regarding the proper scope of these claims, the court, not the jury, must resolve that dispute.” *Id.* However, “district courts are not (and should not be) required to construe *every* limitation present in a patent’s asserted claims.” *Id.* at 1362. For example, no construction is required if the requested construction would be “[a]n obligatory exercise in redundancy,” or if the “disputed issue [is] the proper application of a claim term to an accused process rather the scope of the term.” *Id.* (quoting *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997)).

II. Application

A. Special Master's Recommendations

The Special Master's recommended constructions are as follows:

Claim Term	Recommended Construction
storage router '035 Patent: 1, 2, 3, 4, 5, 6, 7, 10 '041 Patent: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 24, 25, 26, 30, 32, 35, 37, 41, 42, 43, 47, 49, 52, 53 '147 Patent: 1, 2, 3, 4, 5, 6, 9 '311 Patent: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 20, 21, 24, 25, 28	Defined by the remainder of the claim and does not require further construction.
remote '035 Patent: 1, 11 '041 Patent: 1, 2, 3, 4, 7, 12, 13, 19, 20, 21, 22, 23, 26, 31, 32, 37, 38, 39, 40, 43, 48, 49, 53 '147 Patent: 1, 4, 10, 13, 14, 15, 17, 18, 19, 21, 28, 34 '311 Patent: 1, 5, 9, 16, 19, 21, 25	Indirectly connected through at least one serial network transport medium.

storage device(s) '035 Patent: 1, 4, 7, 9, 10, 11, 12, 14 '041 Patent: 1, 2, 3, 4, 7, 12, 13, 19, 20, 21, 22, 23, 26, 31, 32, 37, 38, 39, 40, 43, 48, 49, 53 '147 Patent: 1, 4, 6, 8, 9, 10, 13, 14, 15, 17, 18, 19, 21, 22, 24, 25, 26, 28, 29, 31, 32, 33, 34, 35, 36, 37, 38 '311 Patent: 1, 5, 9, 16, 19, 21, 25	Any storage device, including, for example, a tape drive, CD-ROM drive, an optical drive or a hard disk drive.
interface between; interface with a [first transport medium]; and interface with [a second transport medium] '035 Patent: 1, 10 '041 Patent: 1 '147 Patent: 1, 9, 14, 21 '311 Patent: none	Does not require construction.

<p>first transport medium/first [Fibre Channel] transport medium</p> <p>'035 Patent: 1, 2, 5, 7, 10, 11, 12, 13</p> <p>'041 Patent: 1, 2, 4, 6, 7, 10, 11, 13, 14, 16, 19, 20, 21, 23, 25, 26, 29, 30, 32, 33, 35, 36, 37, 38, 40, 42, 43, 46, 47, 49, 50, 52, 53</p> <p>'147 Patent: 1, 6, 9, 10, 14, 18, 21, 28, 34</p> <p>'311 Patent: 1, 5, 7, 8, 9, 10, 12, 15, 16, 19, 21, 23, 24, 25, 26, 28</p>	<p>The phrase “transport medium” has the plain and ordinary meaning as understood by a person of skill in the art. The “second [Fibre Channel] transport medium” is physically separate from the “first [Fibre Channel] transport medium.”</p>
<p>second transport medium/second [Fibre Channel] transport medium</p> <p>'035 Patent: 1, 6, 7, 10, 11</p> <p>'041 Patent: 19, 20, 36, 53</p> <p>'147 Patent: 1, 6, 9, 10, 14, 21, 28, 34</p> <p>'311 Patent: 1</p>	<p>The phrase “transport medium” has the plain and ordinary meaning as understood by a person of skill in the art. The “second [Fibre Channel] transport medium” is physically separate from the “first [Fibre Channel] transport medium.”</p>

supervisor unit '035 Patent: 1, 2, 10 '041 Patent: none '147 Patent: 1, 2, 9, 14, 15, 17, 19, 34, 35, 38 '311 Patent: none	A device comprising at least: (1) a microprocessor, incorporating independent data and program memory spaces; and (2) associated logic required to implement a standalone processing system and programmed to process data in a buffer in order to map between devices and which implements access controls.
map/mapping '035 Patent: 1, 7, 10, 11 '041 Patent: 1, 2, 4, 5, 6, 9, 16, 20, 21, 23, 24, 25, 28, 35, 37, 38, 40, 41, 42, 45, 52 '147 Patent: 1, 6, 9, 10, 14, 15, 16, 17, 21, 22, 23, 24, 28, 29, 30, 31, 34, 35, 36 '311 Patent: 1, 4, 6, 12, 16, 19, 20, 22, 28	To create a path from a device on one side of the storage router to a device on the other side of the router. A “map” contains a representation of devices on each side of the storage router, so that when a device on one side of the storage router wants to communicate with a device on the other side of the storage router, the storage router can connect the devices.
implement(ing)(s) access control for storage space on the (remote) storage devices '035 Patent: 1, 7, 10, 11 '041 Patent: none '147 Patent: 1, 6, 9, 10, 28 '311 Patent: none	Provides controls which limit a [device/Fibre Channel initiator device/workstation]’s access to a specific subset of storage devices or sections of a single storage device according to a map.

<p>access controls</p> <p>'035 Patent: 1, 7, 8, 10, 11</p> <p>'041 Patent: none</p> <p>'147 Patent: 1, 6, 7, 9, 10, 28, 34</p> <p>'311 Patent: none</p>	<p>Controls which limit a [device/Fibre Channel initiator device/workstation]'s access to a specific subset of storage devices or sections of a single storage device according to a map.</p>
<p>allow(ing) access . . . using NLLBP</p> <p>'035 Patent: 1, 7, 10, 11</p> <p>'041 Patent: 1, 20, 37</p> <p>'147 Patent: 1, 6, 10, 28</p> <p>'311 Patent: none</p>	<p>Permit access using the native low level, block protocol of the virtual local storage without involving a translation from high level network protocols to a native low level block protocol request.</p>
<p>control access from the [at least one] device . . . to the [at least one] remote storage device . . . using native low level, block protocols according to a map</p> <p>'035 Patent: none</p> <p>'041 Patent: none</p> <p>'147 Patent: 14, 21</p> <p>'311 Patent: none</p>	<p>Limit a device's access to a specific subset of storage devices or sections of a single storage device according to a map using native low level, block protocol of the virtual local storage without involving a translation from high level network protocols to a native low level block protocol request.</p>

<p>LUN</p> <p>'035 Patent: none</p> <p>'041 Patent: none</p> <p>'147 Patent: 15, 16, 17, 22, 23, 24, 29, 30, 31, 36</p> <p>'311 Patent: 1, 2, 9, 16, 17, 18, 25</p>	Plain and ordinary meaning to one of ordinary skill in the art. (By agreement between Plaintiff and Defendants).
<p>implement access controls according to the configuration for storage space on the storage device using native low level block protocols</p> <p>'035 Patent: none</p> <p>'041 Patent: none</p> <p>'147 Patent: 34</p> <p>'311 Patent: none</p>	Provides controls which limit a device's access to a specific subset of storage devices or sections of a single storage device according to a map using native low level, block protocol of the virtual local storage without involving a translation from high level network protocols to a native low level block protocol request.

<p>control/controlling access from the devices . . . to the storage space on the remote storage devices in accordance with the map</p> <p>'035 Patent: none</p> <p>'041 Patent: 1, 20, 37</p> <p>'147 Patent: none</p> <p>'311 Patent: 1, 16</p>	<p>Limit a device's access to a specific subset of storage devices or sections of a single storage device according to a map.</p>
<p>in a manner [that is] transparent to [...] the devices</p> <p>'035 Patent: none</p> <p>'041 Patent: 10, 16, 29, 35, 46, 52</p> <p>'147 Patent: none</p> <p>'311 Patent: 7, 12, 23, 28</p>	<p>Plain and ordinary meaning as understood by a person of skill in this art.</p>

<p>processing native low level block requests directed to the identified LUNs from the device to allow access to the storage space associated with the identified LUNs</p> <p>'035 Patent: none</p> <p>'041 Patent: none</p> <p>'147 Patent: none</p> <p>'311 Patent: 1, 16</p>	<p>Processing requests according to a NLLBP of the Virtual Local Storage directed to LUNs associated with the device to permit access to the storage space associated with the LUNs.</p>
<p>for a device connected to the first transport medium, identifying LUNs for storage space allocated to that device in the map; presenting to that device only the identified LUNs as available storage space; and processing native low level block requests directed to the identified LUNs from that device to allow access to the storage space associated with the identified LUNs</p> <p>'035 Patent: none</p> <p>'041 Patent: none</p> <p>'147 Patent: none</p> <p>'311 Patent: 1, 16</p>	<p>No construction necessary.</p>

To the extent the parties have not objected to the Special Master's constructions of certain claim terms, the Court accepts the Special Master's recommendations as to those claim terms

without further comment. These terms are: “first transport medium/first [Fibre Channel] transport medium”; “second transport medium/second [Fibre Channel] transport medium”; “LUN”; and “in a manner [that is] transparent to [...] the devices.”

B. Objections

The Court now turns to the parties’ specific objections.

1. “storage router”

The Special Master recommended this term be defined by the remainder of the claim and not be further construed. Defendants object and argue the term should be limited to the following definition: “A device that routes storage requests from initiator devices/workstations on one transport medium to target storage devices on the other transport medium and routes data between the initiator devices/workstations and target storage devices.” Specifically, Defendants want the storage router to be limited to a “routing” function. The claims, however, clearly contemplate other functions. Moreover, Defendants’ limitation is not supported by the specification, the prosecution history, or the Court’s previous constructions of “storage router.”

Defendants’ arguments fundamentally are directed to questions of infringement. According to Defendants, the accused devices execute incoming commands from a workstation and then generate entirely new commands that are sent to a storage device. Defendants do not want Crossroads to be able to argue to the jury that devices that do not “route” commands are still covered by the claims. *See* Defs.’ Opening Post-*Markman* Br. [#101] at 4. The Court, however, thinks a jury will have no trouble finding the bounds of a “storage router” by simply consulting the claims and the specification, which do not limit storage routers to merely “routing” as Defendants insist. For instance, claim 1 of the ’035 Patent claims a storage router and provides a list of a storage router’s

components and functions. ’035 Patent, col. 9 ll. 13–31 (including “a buffer providing memory work space;” “a first controller operable to connect to and interface with a first transport medium;” “a second controller operable to connect to and interface with a second transport medium; and” “a supervisor unit” coupled to the previous three components, “the supervisor unit operable to map . . . to implement access controls . . . and to process data . . . to allow access . . . using [NLLBP]”). Similarly, the specification, while it contains language indicating storage routers “route” or act as a “bridge device,” the specification also describes the storage router performing other functions beyond merely forwarding commands. *See id.*, col. 5 ll. 34–45; *id.* col. 6 ll. 41–45 (describing the storage router as “a bridge device” but also describing other functions such as providing access controls, providing virtual local storage, and translating between SCSI-3 Fibre Channel Protocol (FCP) and SCSI-2 to allow access to legacy SCSI devices). In sum, the most important source of information—the patent—does not limit “storage routers” to simply “routing,” “bridging,” or “forwarding,” but actually contemplates a variety of other actions.

In the *Chaparral* Litigation, the Court considered similar proposed constructions by the parties and rejected the defendants’ attempt to define storage router as “a bridge device that connects a Fibre Channel link directly to a SCSI bus and enables the exchange of SCSI command set information between application clients on SCSI bus devices and the Fibre Channel Links.” *See Markman Order* [#27] at 11, the *Chaparral* Litigation. While the Court noted the defendants did not make any argument for their proposed definition in their brief, the Court still described the proposal as “disingenuous.” *Id.* The Court observed the specification ascribes various functions to the “storage router” beyond simply being a bridge device and rejected the attempt to limit the term “to one of several descriptive sentences in the specification” *Id.* Furthermore, the Court concluded

“storage router” was “adequately described by the additional language of the claims, which discloses in detail the various functions and/or qualities of the storage router.” *Id.*

In the *Dot Hill* Litigation, the parties also disputed the meaning of “storage router.” While Crossroads argued the term was defined by the claim language, Dot Hill proposed a construction similar to Defendants’ current one: “A device which forwards data between an initiator device on one side of the router and a target storage device on the other side of the router.” *See* Pl.’s Opening Claim Construction Br. [#82-11] Ex. Fore-J (Report & Recommendation from the *Dot Hill* Litigation). Special Master Bayer recommended the following: “A data transmitting device that allows users to integrate different servers or work stations into a storage network.” *Id.* The parties did not object to this recommendation, and the Court accepted it. *See* Markman Order [#288] at 17, the *Dot Hill* Litigation. While this construction is different from both parties’ current proposals, it clearly represents a rejection of Defendants’ basic argument seeking a restriction to a “routing” or “forwarding” function. Indeed, Crossroads has indicated it would be satisfied with the Court’s adoption of the same construction from the *Dot Hill* Litigation while Defendants are not amenable to the Court’s previous construction as they find it too broad. *Compare* Pl.’s Opening Post-Markman Br. [#100] at 4, *with* Defs.’ Responsive Post-Markman Br. [#102] at 3 n.4.

Defendants argue the prosecution history—and specifically the Reexamination of the ‘035 Patent—reflects Crossroads’ disavowal of any storage router functions beyond “routing.” In particular, Defendants focus on Crossroads’ use of the preferred embodiment to explain how the storage router “routes” requests. Defendants represent that, according to Crossroads, this process involved: (1) receiving a Fibre Channel-encapsulated SCSI command at the storage router; (2) stripping off the Fibre-Channel encapsulation; and (3) forwarding the SCSI command to the

storage device without any translation of the command. *See* Defs.’ Opening Claim Construction Br. [#83] at 15. The passage at issue, however, does not reflect any statement by Crossroads that the storage router forwards the command “without any translation.” Instead, Crossroads represented the storage router forwards the command “without any high-to-low level translation.” *Id.* (quoting ’035 Patent Reexamination, Apr. 6, 2005 Reply to Office Action at 9–10). Defendants cite no portion of the record indicating Crossroads said anything during Reexamination about any other type of translation, namely low-to-low level translation. Instead, Crossroads distinguished the prior art references as involving high-to-low level translation. In fact, the example discussed by Defendants in the prosecution history is the SCSI-3 FCP to SCSI-2 embodiment, and the patent expressly calls for the storage router to translate commands from SCSI-3 to SCSI-2. ’035 Patent col. 6 ll. 41–45 (“The storage router serves to translate command and status information and transfer data between SCSI-3 FCP and SCSI-2 . . . ”). At the *Markman* hearing, counsel for Defendants agreed with Special Master Bayer that while there was a clear disavowal of high-to-low level translation, there was not a similar disavowal of low-to-low level translation. *See* Oct. 6, 2014 Hr’g Tr. [#98] at 181:14–182:10; Defs.’ Opening Post-*Markman* Br. [#101] at 11 (acknowledging Crossroads did not disavow low-to-low level translation). After review of the prosecution history and the Reexamination proceedings, the Court finds Defendants have failed to show Crossroads made a deliberate and unambiguous disclaimer of “any translation of the command.” *See Cordis Corp. v. Medtronic Ave, Inc.*, 511 F.3d 1157, 1177 (Fed. Cir. 2008) (citations omitted). Relatedly, the Court does not find the prosecution history reflects Crossroads binding itself to a definition of storage router whereby it can only “route” or “forward” storage requests.

In sum, the Court agrees with the Special Master that “storage router” be defined by the remainder of the claim and not be further construed. Distilled to the core, Defendants’ proposed construction and arguments are the same ones the Court has previously rejected on multiple occasions. The Court ACCEPTS the Special Master’s recommendation, and OVERRULES Defendants’ objection.

2. “remote”

The Special Master recommended this term be construed as: “indirectly connected through at least one serial network transport medium.” Defendants object and propose: “indirectly connected through a storage router to enable network connections from [devices/Fibre Channel initiator devices/workstations] to storage devices at a distance greater than allowed by a conventional parallel interconnect.” The parties agree “remote” requires a network, but they part ways on whether a network requires “at least one serial network transport medium.” In the *Dot Hill* Litigation, the Court addressed, at length, the definition of “remote” and analyzed this same issue. *See Markman Order* [#288] at 7–11, the *Dot Hill* Litigation. First, the Court established “the specification effectively equates network storage with remote storage.” *Id.* at 6. Next, the Court considered and rejected Dot Hill’s contention that the type of network interconnects that mediate between computer workstations and remote storage devices should not be limited exclusively to serial network interconnects but should also allow for “parallel network interconnects” like a SCSI interface. *Id.* at 7–8.

As the Court explained, Dot Hill’s position was motivated by an invalidity argument premised on alleged prior art that only made use of SCSI connections. *Id.* at 8. But Dot Hill’s position also directly contradicted the language in the specification, which “clearly distinguish[es]

SCSI connections from network interconnects.” *Id.* (citing ’972 Patent, col. 1 ll. 12–49; ’035 Patent, col. 1 ll. 23–60). While “a SCSI transport medium allows ‘for a relatively small number of devices to be attached over relatively short distances,’” “[h]igh speed serial interconnects provide enhanced capability to attach a large number of high speed devices to a common storage transport medium over large distances.” *Id.* (quoting ’972 Patent, col. 1 ll. 12–20; ’035 Patent, col. 1 ll. 23–31). In other words, the Court concluded “the patent specifications treat serial interconnects and network interconnects as being one and the same thing.” *Id.* at 11 n.7. The Court ultimately adopted the Special Master’s proposed construction: “indirectly connected through at least one serial network transport medium,” which is the same construction proposed by Crossroads and recommended by Special Master Bayer in this case. In the *3Par* Litigation, the parties stipulated to this same construction. *See Markman Order* [#179] at 3, the *3Par* Litigation.

Defendants urge the Court to arrive at a different conclusion this time around based on evidence presented by their expert, Dr. Katz, that was not previously before the Court. Specifically, Dr. Katz testified as to his personal experience designing a system called “RAID-2” in 1992 which did not use serial interconnects to enable connections to a remote storage device. In other words, Defendants rely on Dr. Katz’s RAID-2 experience to argue a “network connection” does not require a “network interconnect” as he used a non-network parallel interconnect (HiPPI). The Court does not find this evidence sufficient to justify a change in position. First, the Court’s primary focus is on the intrinsic record and the patent language in particular. As explained in the *Dot Hill Markman Order*, the specification equates network interconnects and serial interconnects. Dr. Katz’s testimony as to his personal experiences does not alter that conclusion.

In addition, Defendants' argument appears to be an attempt to renew the invalidity argument identified by the Court in the *Dot Hill Markman* Order. Put differently, Defendants contend parallel interconnects can provide the "network" necessary for "remote" which would supposedly implicate some invalidating prior art. Yet Dr. Katz admitted "there is difficulty there in assigning to the concept of a parallel interconnect that it be a network." Oct. 7, 2014 Hr'g Tr. [#99] at 127:23–24. This admission was notable in light of the fact Dr. Katz had stated in his original declaration that a parallel SCSI interconnect was an example of a "conventional parallel network interconnect," and his declaration had formed the basis of Defendants' original proposed construction. *See Markman* Hr'g Ex. D1 (Katz Decl.) ¶ 51. But networks are serial, not parallel, and Dr. Katz admitted SCSI is not a "conventional parallel network interconnect." Oct. 7, 2014 Hr'g Tr. [#99] at 132:14–16. In fact, Dr. Katz stated at the *Markman* hearing there is actually no such thing as a "conventional parallel network interconnect." *Id.* at 128:23–24, 129:10–12.⁵ Similarly, Defendants changed their proposed construction to remove the word "network" and, in so doing, acknowledged network interconnects are serial.

⁵ The parties have also debated statements made by Dr. Katz in a paper he wrote in 1992 titled *High Performance Network and Channel-Based Storage*. *See Markman* Hr'g Ex. J19 at 1239. The passage at issue reads in its entirety:

While no statement we can make is universally true, in general, backplanes can be characterized by parallel wide data paths and centralized arbitration, and are oriented toward read/write "memory mapped" operations. That is, access to control registers is treated identically to memory word access. Networks, on the other hand, provide serial data, distributed arbitration, and support more message-oriented protocols.

Id. Crossroads cites this language to contend Dr. Katz agrees network connections are serial. *See* Pl.'s Opening Claim Construction Brief [#82] at 22. Defendants dispute this characterization and argue "Dr. Katz's paper discusses network interconnects that 'in general' (but do not universally) provide serial data. *See* Defs. Op. Br., Ex. N at 1239 ("While no statement we can make is universally true, in general, . . . [n]etworks . . . provide serial data . . .")." Defs.' Reply Claim Construction Br. [#90] at 12 n.13. The Court agrees with Crossroads' plain citation of the relevant text instead of Defendants' more strained interpretation. The passage clearly indicates Dr. Katz's opinion that networks are serial.

In addition to the RAID-2 system, Defendants have also pointed to an embodiment in the specification as supposedly an example of network interconnects that do not rely on a serial standard. The specification describes four modes of operation for storage router 56: “The storage router has various modes of operation that are possible between FC and SCSI target and initiator combinations. These modes are: FC Initiator to SCSI Target; SCSI Initiator to FC Target; SCSI Initiator to SCSI Target; and FC Initiator to FC Target.” ’035 Patent, col. 6 ll. 19–23. Defendants argue the third mode, SCSI-to-SCSI, does not require a serial interconnect and therefore “serial” should not be part of the Court’s construction. Defs.’ Opening Claim Construction Br. [#83] at 25–26.

The third mode, however, does not rule out serial interconnects. According to the patent, “[t]he third mode can involve two storage routers back to back and can serve primarily as a device to extend the physical distance beyond that possible via a direct SCSI connection.” ’035 Patent, col. 6 ll. 25–28. As explained by Crossroads’ expert, Dr. Levy, one of ordinary skill in the art would understand that in order for the third mode to be “remote,” it would involve connecting the two storage routers back-to-back with a Fibre Channel connection. *See* Oct. 7, 2014 Hr’g Tr. [#99] at 101:24–103:23. At the same time, Dr. Levy conceded the patent does not explicitly describe connecting the two back-to-back storage routers with a serial interconnect. *Id.* at 115:25–116:7.

Dr. Katz, on the other hand, testified the third mode can involve one storage router or two storage routers back-to-back, but it does not require a serial transport. *Id.* at 138:23–139:25. When asked whether it had always been his opinion that the third mode does not require a serial connection, Dr. Katz testified: “Yes. As I can remember it now.” *Id.* at 140:8–12. Dr. Katz, however, later admitted he had provided an expert opinion in the *Dot Hill* Litigation, in which he stated the only form of storage router disclosed in the ’035 Patent required a Fibre Channel serial

interconnect. *Id.* at 141:22–144:1. Moreover, Dr. Katz also admitted he opined in the *Dot Hill* Litigation that the third mode of operation actually required two storage routers connected by a Fibre Channel interconnect, i.e., the same position taken by Dr. Levy and Crossroads in this case. *Id.* at 143:18–144:13 (“It’s clearly the case that I did say that [the two storage routers] are connected by a fiber channel interconnect. So I have had that opinion in the past.”).

The Court agrees with Crossroads that the third mode does require a serial connection between two back-to-back storage routers. This interpretation is consistent with the patent and makes sense if the third mode is to be considered “remote” and capable of “serv[ing] primarily as a device to extend the physical distance beyond that possible via a direct SCSI connection.” ’035 Patent, col. 6 ll. 25–28. The Court did not find Dr. Katz consistent on this particular topic and found it notable that in the *Dot Hill* Litigation he held the same opinion promoted by Crossroads and Dr. Levy before taking an opposite stance in this case.⁶ As such, the Court rejects Defendants’ contention the SCSI-to-SCSI third mode of operation represents an example of network interconnects that does not rely on a serial standard.

⁶ Defendants try to explain away Dr. Katz’s inconsistent opinions because Dr. Katz wrote his report in the *Dot Hill* Litigation after the Court issued its claim construction, and therefore Dr. Katz merely applied the controlling construction. *See* Defs.’ Opening Post-Markman Br. [#101] at 40 n.20; Oct. 7, 2014 Hr’g Tr. [#99] at 147:25–148:8. First, the Court fails to see why Dr. Katz’s opinion should shift around based on the Court’s claim construction. Second, Defendants only attempted to rehabilitate Dr. Katz concerning his statement that there is no disclosure that a single router may be configured to connect by means of SCSI on both sides. *See* Oct. 7, 2014 Hr’g Tr. [#99] at 147:8–148:8. Defendants failed to even attempt to rehabilitate Dr. Katz with respect to his previously held opinion that the third mode of operation required two storage routers connected by a Fibre Channel transport. Third, Dr. Katz plainly stated his position on the third mode of operation in the *Dot Hill* Litigation was his actual opinion, not an interpretation of the patent he only provided after applying the Court’s construction but which he actually believed to be false. *Id.* at 143:18–144:13 (“It’s clearly the case that I did say that [the two storage routers] are connected by a fiber channel interconnect. So I have had that opinion in the past.”). Finally, the Court did not find the rehabilitation particularly convincing as Dr. Katz answered two clear questions regarding whether he applied the Court’s construction in preparing his report in the negative. *Id.* at 147:14–20. Only after counsel—having not received the answer he wanted—started over and asked Dr. Katz the question a third time did Dr. Katz actually claim he applied the Court’s construction in writing his report. *Id.* at 147:21–148:8.

Finally, the parties dispute whether the construction should include language related to distance capability. Specifically, Defendants' proposed construction provides "at a distance greater than allowed by a conventional parallel interconnect." "Remoteness" is naturally a tricky concept, but by introducing the concept of "distance," Defendants create even more ambiguity. Defining a distance "greater than allowed by a conventional parallel interconnect" becomes a new question, the answer to which is unclear to the Court. For instance, according to Dr. Levy, there were many conventional parallel interconnects having different lengths at the time the patent was issued. *See* Oct. 7, 2014 Hr'g Tr. [#99] at 107:5–25 (describing different parallel interconnects and their respective distance capabilities). In contrast, while the Special Master's recommendation does not solve the distance capability issue, it does more simply and clearly require an indirect connection through "at least one serial network transport medium." The specification describes the serial nature of the network interconnects as providing the capability to achieve longer distances than parallel interconnects, and the experts agree on this point. *See* '035 Patent, col. 1 ll. 28–36; col. 2 ll. 27–33; *Markman* Hr'g Ex. P10 (Levy Decl.) ¶ 54; Pl.'s Reply Claim Construction Br. [#87-2] Ex. A (Katz Dep.) at 110:16–23. The Court finds it better to define "remote" in reference to the interconnects actually used ("at least one serial network transport medium") rather than those not used ("a distance greater than allowed by a conventional parallel interconnect").

In sum, the Court sees no reason to veer from its analysis and conclusion in the *Dot Hill* Litigation that "the patent specifications treat serial interconnects and network interconnects as being one and the same thing." *See Markman* Order [#288] at 11 n.7, the *Dot Hill* Litigation. The Court rejects Defendants' contention that "remote," as described by the patents-in-suit, can be achieved

by a “network connection” formed by “non-network interconnects.” The Court ACCEPTS the Special Master’s recommendation, and OVERRULES Defendants’ objection.

3. “storage device(s)”

The Special Master recommended this term be construed as: “any storage device, including, for example, a tape drive, CD-ROM drive, an optical drive or a hard disk drive.” This construction is consistent with the Court’s previous three claim construction orders on this family of patents. *See Markman Order* [#27] at 9–10, the *Chaparral* Litigation (construing “SCSI storage devices” as “any storage device including, for example, a tape drive, CD-ROM drive, or hard disk drive that understands the SCSI protocol and can communicate using the SCSI protocol”); Stipulated Definition of Claim Terms [#131] at 2, the *Dot Hill* Litigation (stipulating to the definition of “storage devices” as “any storage device, including, for example, a tape drive, CD-ROM drive, an optical drive or a hard disk drive”); *Markman Order* [#288] at 17, the *Dot Hill* Litigation (adopting the parties’ stipulations); *Markman Order* [#179] at 3–4, the *3Par* Litigation (adopting the parties stipulated terms, including “storage device(s)” as “any storage device, including, for example, a tape drive, CD-ROM drive, an optical drive or a hard disk drive”).

Defendants do not disagree that tape drives, CD-ROM drives, optical drives, and hard disk drives are illustrative examples of storage devices. Defendants, however, believe “storage device” should be clarified as an “electronic device that stores data.” The Court finds this qualification unsupported by any language in the patent and unnecessary. Defendants apparently intend to draw a distinction between drives and tapes or disks. *See* Defs.’ Opening Post-*Markman* Br. [#101] at 45. In other words, under Defendants’ construction, a tape drive is not a storage device unless it has a tape in it, and a tape is not a storage device unless it is in a tape drive. *Id.* (describing a storage

device “to be one that ‘stores data,’ which is a function that (for example) a tape drive cannot perform *without a tape* in it” and storage devices should not include “isolated media”) (emphasis in original). Yet Defendants’ construction lists “tape drive” as an example of a “storage device” without reference to whether there is a tape in it or not. The Court declines to adopt a construction which would include a tape drive as a storage device when it has a tape in it but would cease to be a storage device once the tape is removed.

The Court ACCEPTS the Special Master's recommendation, and OVERRULES Defendants' objection.

4. “interface between; interface with a [first transport medium]; and interface with [a second transport medium]”.

Where the patent actually does mention “interface with/between,” neither the claim language nor the specification supports Defendants’ position. For instance, claim 1 describes “a first controller operable to connect and interface with a first transport medium.” ’035 Patent, col. 9 ll. 18–19. Applying Defendants’ construction, the phrase would read: “a first controller operable to

connect and [directly connect] with a first transport medium.” Such an outcome renders the first “to connect” superfluous, and the Court avoids constructions which make words unnecessary.

In addition, the specification includes descriptions of “direct connections,” demonstrating the inventors knew how to distinguish between “connect” and “directly connect,” and in fact, the inventors specifically distinguished between “directly connecting” and “interfacing with.” For example, in one embodiment, the specification states “Management station 76 can *connect directly to storage router 56 via a direct connection or, alternately, can interface with* storage router 56 through either Fiber Channel 52 or SCSI bus 54.” *Id.* col. 4 ll. 35–43 (italics added). Equating “directly connect” and “interface with” renders this sentence incoherent.

Defendants attempt to explain away this problem by arguing “[a] ‘direct’ connection does not require literally *nothing* to be between the end points—instead it requires that the signals are passed from one end to the other without having their informational content altered.” Defs.’ Reply Claim Construction Br. [#90] at 14 (emphasis in original). Defendants’ argument is not well-taken. First, the example from the previous paragraph clearly contrasts a direct connection from an indirect connection (i.e., “interfacing with”) based on whether there is intervening or intermediary hardware. Management station 76 can either directly connect with storage router 56, meaning there is no intervening hardware, or management station 76 can interface with storage router 56, meaning there is intervening hardware. The intervening hardware is either Fiber Channel 52 or SCSI bus 54, which are in turn connected to storage router 56. *See* ’035 Patent, fig.3. Second, Defendants originally defined “directly connect” as “without any intermediary or extraneous pieces of hardware in the middle.” Defs.’ Joint Opening Claim Construction Br. [#83] at 29–31 (repeatedly using language to this effect to describe a direct connection). Yet in their Reply Claim Construction Brief,

Defendants, perhaps realizing their proposed definition is inconsistent with the patent language, changed their definition of a direct connection to mean signals are passed “without having their informational content altered.” Defs.’ Reply Claim Construction Br. [#90] at 14. Defendants’ shifting definitions do not persuade the Court. Moreover, the patent includes no language indicating “interface with” has anything to do with whether “the content has been altered.”

In the *Chaparral* Litigation, the parties originally disputed the meaning of “interface” before agreeing it needed no construction. The Court agreed, stating “[t]his term has a standard and ordinary meaning—even to a federal judge—and the Court will not further define it.” *See Markman* Order [#27] at 13–14, the *Chaparral* Litigation. Defendants’ proposal, which is inconsistent with the patent’s language, does not convince the Court to change its position. The Court ACCEPTS the Special Master’s recommendation, and OVERRULES Defendants’ objection.

5. “supervisor unit”

The Special Master recommended this term be construed as: “a device comprising at least:

- (1) a microprocessor, incorporating independent data and program memory spaces; and
- (2) associated logic required to implement a standalone processing system and programmed to process data in a buffer in order to map between devices and which implements access controls.” Crossroads objects and proposes: “a processing device that controls operation of the storage router, including handling mapping and access controls.” The Court first construed “supervisor unit” in the *Chaparral* Litigation where it adopted Crossroads’ proposed construction: “a microprocessor programmed to process data in a buffer in order to map between Fibre Channel devices and SCSI devices and which implements access controls.” *Id.* at 9. The Court rejected the defendants’ attempt to limit “supervisor unit” to a specific brand of microprocessor, “an Intel 80960RP.” *Id.* The Court

again construed “supervisor unit” in the *Dot Hill* Litigation where the Special Master recommended essentially the same construction proposed by Defendants and again recommended by the Special Master in this case. Crossroads did not object, and the Court adopted that construction. *Markman* Order [#288] at 14–15, the *Dot Hill* Litigation. In the *3Par* Litigation, the term was not identified for either stipulation or construction.

Claim 1 describes “supervisor unit” in terms of its operational capacity as follows:

a supervisor unit coupled to the first controller, the second controller and the buffer, the supervisor unit operable to map between devices connected to the first transport medium and the storage devices, to implement access controls for storage space on the storage devices and to process data in the buffer to interface between the first controller and the second controller to allow access from devices connected to the first transport medium to the storage devices using native low level, block protocols.

'035 Patent, col. 9 ll. 22–31.

The specification also describes multiple implementations of a “supervisor unit.” For instance, “[s]upervisor unit **86** comprises a microprocessor for controlling operation of storage router **56** and to handle mapping and security access for requests between Fibre Channel **52** and SCSI bus **54.**” *Id.* col. 5 ll. 12–17. Supervisor unit 86, which is in Figure 4, is further described as “process[ing] the data This processing involves mapping . . . and applying access controls.” *Id.* col. 5 ll. 24–27. In addition, the specification includes the following description:

To accomplish its functionality, one implementation of the storage router uses: . . . an Intel 80960RP processor, incorporating independent data and program memory spaces, and associated logic required to implement a stand alone processing system;
. . .

Id. col. 6 ll. 3–10.

Crossroads objects to the Special Master’s recommendation because it defines a supervisor unit as: (1) a “microprocessor”; (2) a microprocessor “incorporating independent data and program

memory spaces”; and (3) “associated logic required to implement a standalone processing system.” Crossroads’ core objection is that the recommended construction improperly limits the term to one specific embodiment because the objected-to language derives from the specification’s discussion of “one implementation.”

First, the Court rejects Crossroads attempt to broaden “supervisor unit” beyond a “microprocessor” by calling it a “processing device.” Crossroads proposed a construction in the *Chaparral* Litigation that included the “microprocessor” limitation, and the Court adopted it, ultimately sending it to a jury. *See* Jury Instructions [#131] at 13, the *Chaparral* Litigation. In the *Dot Hill* Litigation, the Special Master recommended a construction with the “microprocessor” limitation, and Crossroads did not object. Now, Crossroads takes a different position than in previous cases in a clear attempt to broaden the term’s scope but only relies on its expert’s testimony for this shift in position. *See* Pl.’s Objections [#111] at 10 (citing Dr. Levy’s testimony that a “supervisor unit” could be accomplished through various types of “processing devices” other than just a microprocessor, including a “processor embedded in an ASIC, or you could have some other kind of processing devices”). Crossroads’ expert’s testimony does not provide a sound basis for altering its position, especially when the specification consistently describes a “supervisor unit” as a “microprocessor.”

Second, concerning the “incorporating independent data and program memory spaces” and “associated logic required to implement a standalone processing system” limitations, the Court agrees their only basis is the passage in the specification describing “one implementation.” The Court, however, does not agree that including them in the construction is improper. Crossroads cites the Court’s claim construction order in the *Chaparral* Litigation, in which it declined to rely on the

same passage to limit the term “supervisor unit.” *See id.* at 6–7. In the *Chaparral* Litigation, the defendants tried to limit “supervisor unit” to an “Intel 80960RP processor.” Here, Crossroads has presented no evidence that this is the only chip that would meet the Special Master’s proposed construction of “supervisor unit.” As such, the Special Master’s recommendation is not inconsistent with the position taken in the *Chaparral* Litigation.

Notably, Crossroads fails to adequately address the *Dot Hill* Litigation, which occurred subsequent to the *Chaparral* Litigation, in which the Special Master, despite having previously declined to limit “supervisor unit” to an “Intel 80960RP processor” because it would have improperly limited the construction to a specific embodiment, did recommend “supervisor unit” be limited to: “(1) a microprocessor, incorporating independent data and program memory spaces; and (2) associated logic required to implement a stand-alone processing system.” *Markman Order* [#288] at 14–15, the *Dot Hill* Litigation. In fact, the Court specifically rejected Dot Hill’s objection to the new proposal as inconsistent with the construction in the *Chaparral* Litigation, reasoning that while “the parties’ dispute [in the *Chaparral* Litigation] revolved around whether the term ‘supervisor unit’ covered only a particular brand of microprocessor, the issue in this case is whether the term is limited to a microprocessor alone, rather than a microprocessor along with other components.” *Id.* at 17. Crossroads did not object to the Special Master’s recommendation in the *Dot Hill* Litigation, which included the exact limitations Crossroads now claims are improper. Therefore, while Crossroads argues the Special Master’s recommendation in this case is inconsistent with prior constructions, it is actually Crossroads who has staked out conflicting positions depending on whether it wanted a term construed broadly or narrowly for infringement purposes. The Special Master has maintained consistency with the Court’s previous constructions.

The Court ACCEPTS the Special Master’s recommendation, and OVERRULES Crossroads’ objection.

6. “map/mapping”

The Special Master recommended the term be construed as: “to create a path from a device on one side of the storage router to a device on the other side of the router. A ‘map’ contains a representation of devices on each side of the storage router, so that when a device on one side of the storage router wants to communicate with a device on the other side of the storage router, the storage router can connect the devices.” In the *Chaparral* Litigation, Crossroads proposed essentially this same construction while the defendants argued the term meant “to translate addresses.” *See Markman* Order [#27] at 12, the *Chaparral* Litigation. Because the defendants only cited a dictionary definition and because the Court agreed with Crossroads that the specification language supported its construction, the Court adopted Crossroads’ proposal. *Id.* The Court ultimately instructed the jury using this definition. *See* Jury Instructions [#131] at 13, the *Chaparral* Litigation. In the *Dot Hill* Litigation, the parties agreed on the exact definition proposed by Crossroads and recommended by Special Master Bayer in the instant case. *See* Stipulated Definition of Claim Terms [#131] at 3, the *Dot Hill* Litigation; *Markman* Order [#288] at 17, the *Dot Hill* Litigation (adopting the parties’ stipulations). After the Reexamination in which Crossroads presented the Court’s construction from the *Chaparral* Litigation to the Examiner, the parties in the *3Par* Litigation also stipulated to the construction of “map/mapping” that Crossroads is currently proposing. *See Markman* Order [#179] at 3–4, the *3Par* Litigation.

Defendants agree with much of Crossroads’ proposal. They agree the term “map[ping]” refers to creating a path from a device on one side of the storage router to a device on the other side

of the storage router. They also agree a “map” contains a representation of devices on each side of the storage router, so that when a device on one side of the storage router wants to communicate with a device on the other side of the storage router, the storage router can connect the devices. Defendants, however, argue for the following additional limitations: (1) the map must further provide the addressing information of an actual physical storage device; and (2) the addressing information provides block-level location information for the physical storage device. Crossroads opposes these limitations and argues it is not required that the map contain information about the actual physical storage device rather than merely a logical representation of physical storage.

With respect to Defendants’ first desired limitation, the Court focuses on the most important source—the patent itself—and agrees with Crossroads. The specification does not require the physical storage device information be contained in the map and actually includes examples where the map only includes logical storage. For example, the specification describes the maps as allocating storage. *See* ’035 Patent, col. 4 ll. 13–16 (“Storage router **56** allows the configuration and modification of the storage allocated to each attached workstation **58** through the use of mapping tables or other mapping techniques.”). Figure 3 describes an example in which a map is used to allocate partitions to workstations as “each partition is allocated to one of the workstations **58**” and “appears to the associated workstation **58** as local storage.” *Id.* col. 4 ll. 19–26. The specification continues: “[T]he storage space considered by the workstation **58** to be its local storage is actually a partition (*i.e.*, *logical storage definition*) of a physically remote storage device **60**, **62** or **64** connected through storage router **56**.” *Id.* col. 4 ll. 51–54 (emphasis added). The patent therefore expressly describes the storage allocated in the map as a logical storage definition.

Relatedly, the specification distinguishes the logical storage allocated in the map from physical storage:

Management station 76 can connect directly to storage router 56 via a direct connection or, alternately, can interface with storage router 56 through either Fiber Channel 52 or SCSI bus 54. In the latter case, management station 76 can be a workstation or other computing device with special rights such that storage router 56 *allows access to mapping tables and shows storage devices 60, 62 and 64 as they exist physically rather than as they have been allocated.*

Id. col. 4 ll. 36–43 (emphasis added). As indicated, the storage router allows the management station access to mapping tables that show how logical storage is allocated to the hosts, and the storage router shows the management station the storage devices as they exist physically rather than as they have been allocated as logical storage in the map.

Defendants fail to rebut these examples in the specification with any language in the patent stating the map must include physical storage device information. While Defendants claim “[t]he record is replete with evidence from the specification . . . that the map itself must specify a path to a *physical* storage device,” their only citations to the specification merely reflect the storage devices exist physically. Defs.’ Responsive Post-*Markman* Br. [#102] at 11–12 (emphasis in original). However, no party disagrees that data is ultimately stored on physical storage devices. As Special Master Bayer summarized at the hearing, “the flavor of the patent” is a “map going from one physical device—initially and ultimately—to another physical device.” Oct. 7, 2014 Hr’g Tr. [#99] at 55:23–56:1. But Defendants’ desired limitation is not to establish that the storage devices are physical but rather that the physical storage device information must be contained in the map. Defendants cite no support in the specification for this latter contention.

Lacking support in the patent, Defendants turn to the prosecution history, arguing the Reexamination proceedings confirm the map must specify a physical storage device, but the Court disagrees. During the Reexamination, the patentee distinguished the invention of the '035 Patent from two prior art references, Petal and Oeda, because the maps in Petal and Oeda were “virtualization” maps that did not include any information about the hosts/workstations. As Crossroads explained to the Examiner: “[T]he mapping of Petal only represents the virtualization mapping of storage devices and does not correlate or associate the storage devices (either virtual or physical) to particular Petal clients (e.g., workstations) on the other side of the Petal server.” Pl.’s Reply Claim Construction Br. [#87-2] Ex. B at 13. Notably, the patentee specifically pointed out the maps did not correlate workstations to any storage devices, either virtual or physical.

Similarly, with respect to Oeda, Crossroads stated:

In Oeda, each host knows the storage device SCSI IDs it is permitted to access and makes requests only to those storage IDs. . . . In other words, the disk controller in Oeda does not consult any map to determine whether the host should be connected to the requested target SCSI ID; rather, if the disk controller of Oeda receives a request, it simply forwards it to the appropriate SCSI ID. There is simply no teaching or suggestion in Oeda that disk controller 5, or any other device in Oeda, maintain a “map” that contains a representation of host devices on one side of the disk controller and representations of storage devices on the other side of the disk controller as recited in the claims of the '035 Patent.

Id. Ex. C at 31. As shown, Crossroads distinguished its claimed map from the prior art because Petal and Oeda did not include any reference to a host, and there is no indication Crossroads disclaimed a map that associates a host device with logical storage, as argued by Defendants. *See Cordis*, 511 F.3d at 1177 (explaining that “[f]or prosecution disclaimer to attach, [federal circuit] precedent requires that alleged disavowing actions or statements made during prosecution be both clear and unmistakable”). In fact, none of the prosecution history cited by Defendants even specifically

discusses whether the map contains the physical storage device information. *See* Defs.’ Opening Post-*Markman* Br. [#101] at 22–26.

In contrast, Crossroads highlights portions of the prosecution history in which the patentee explicitly told the examiner the claimed map can associate hosts on the first transport medium with storage devices on the second transport medium by associating the hosts with virtual/logical representations of the storage in the map, and the map can potentially—but not necessarily—include physical storage device information:

In the Chaparral Litigation, the U.S. District Court for the Western District of Texas adopted the definition that a “map” contains a representation of a device on one side of the storage router to a storage device on the other side The mapping of the ’035 Patent associates host device(s) on the first transport medium (e.g., workstations) with storage devices on the second transport medium. Thus, the mapping can include *mapping from a host workstation identifier . . . to a virtual representation of a storage device (e.g., a virtual Logical Unit Number (LUN)), and potentially even further from the virtual representation of the storage device to a physical representation of the storage device*

Pl.’s Reply Claim Construction Br. [#87-2] Ex. B at 12 (distinguishing Petal) (*emphasis added*); *see also id.* Ex. C at 29 (“[T]he map can include mapping a host workstation identifier . . . and a virtual representation of a storage device”) (distinguishing Oeda).

Consistent with these representations to the examiner, the specification teaches that the storage router shows available storage to workstations as “FCP logical units” or LUNs. *See* ’035 Patent, col. 5 ll. 50–53. In so doing, the storage router provides centralized access control, rebutting Defendants’ contention the map must include physical storage device information by implication because if it did not, then the map could not provide centralized access control. *See* Defs.’ Opening Post-*Markman* Br. [#101] at 27–28. As described in the patent, “storage router 56 provides centralized control of what each workstation 58 sees as its local drive, as well as what data it sees

as global data accessible by other workstations.” ’035 Patent, col. 4 ll. 48–51. In other words, storage router 56 controls which LUNs each workstation sees as its virtual local storage. At the *Markman* hearing, Dr. Levy explained how the centralized access control functions according to the map:

[F]irst, the management station sets up the map. . . . [I]t does the allocation by creating a map that has a host name and then, a logical unit number, and that logical unit number then represents logical storage that’s been allocated to that host. And so, that’s the setting up of the map.

Then when the workstation requests to know what LUNs it has access to, it reports those LUNs to the host; and at that point, the controlling access is really complete because the host can’t ask for anything it doesn’t know about.

Oct. 6, 2014 Hr’g Tr. [#98] at 199:21–200:5. As such, no physical device storage information is needed in the map to provide the centralized access controls. *Id.* at 200:20–24 (“Q: So in describing how the invention implements access controls using the map, I didn’t hear you describe any physical storage device information like block address information or the physical storage. Why is that? A: Well, because it’s not required to be in the map.”).

Turning its attention to Defendants’ second proposed limitation, the Court also agrees with Crossroads that the map does not need to create a path for the communication of “block addressed requests and data.” According to Defendants, “[t]he claims require allowing access to storage devices ‘using native low level, *block* protocol in accordance with the mapping,’” and “the specification emphasizes that the use of native low level, block protocol (‘NLLBP’) *in accordance with* the map is fundamental to the purported invention” Defs.’ Opening Post-*Markman* Br. [#101] at 33 (emphasis in original) (citations omitted). In other words, Defendants interpret “the use of NLLBP” as requiring the map to route block-addressed commands and data. *Id.*

Defendants' interpretation, however, is misplaced. As an initial matter, pursuant to the parties' stipulated definitions, "NLLBP" is defined as: "A set of rules or standards that enable computers to exchange information and do not involve the overhead of high level protocols and file systems typically required by network servers." Stipulated Definitions [#81] at 2. Notably absent from this definition is any mention of "block-addressed requests and data." In addition, including "block-addressed requests and data" would read out certain examples discussed in the patent. For instance, the specification discusses the example of a sequential access storage device. *See* '035 Patent, col. 6 ll. 39–41. But Read and Write commands for sequential access storage devices do not include block address information. Oct. 6, 2014 Hr'g Tr. [#98] at 230:24–231:2 ("Q: For a sequential access device, say, a tape drive or a tape, do the read and write commands . . . include any block address information? Dr. Levy: No. They don't."); Oct. 7, 2014 Hr'g Tr. [#99] at 41:25–42:12 (Dr. Katz agreeing there is no block address information in the sequential access Read and Write command descriptor blocks). Defendants attempt to counter this point by arguing Read and Write "are block-addressed in a relative fashion, based on the position of the tape." Defs.' Opening Post-*Markman* Br. [#101] at 35. The Court is not persuaded by this argument.

In sum, the Court disagrees with Defendants' requested limitations. They do not find support in the specification nor the prosecution history, and both of these sources actually undermine Defendants' position. The Court ACCEPTS the Special Master's recommendation, and OVERRULES Defendants' objection.

7. “access controls”⁷

The Special Master recommended this term be construed as: “controls which limit a [device/Fibre Channel initiator device/workstation]’s access to a specific subset of storage devices or sections of a single storage device according to a map.” The parties do not dispute this construction is correct, but Defendants want to add to the end of the construction: “for the device.” Defendants contend this language is necessary and consistent with their proposed construction for “map/mapping.” *See* Defs.’ Opening Claim Construction Br. [#83] at 18. Specifically, Defendants argue “the ‘map’ must specify the *particular* workstation (as well as the particular remote storage device) in order to allow and control that workstation’s access to the remote storage device ‘in accordance with’ the map.” *Id.* (emphasis in original). Taking this proposition as true, the Court fails to see how Defendants’ “according to a map for the device” phrase conveys their desired message that the map must contain a representation of the host device. Instead, as Crossroads points out, the language causes confusion and makes it seem as if there is a map for each storage device or workstation, which both sides agree is not the case. *See* Defs.’ Reply Claim Construction Br. [#90] at 8 n.8. The Court finds Defendants’ proposed language unnecessary and confusing.

The Court ACCEPTS the Special Master’s recommendation, and OVERRULES Defendants’ objection.

⁷ The disputes with respect to the phrases “control/controlling access from the devices . . . to the storage space on the remote storage devices in accordance with the map” and “implement(ing)(s) access control for storage space on the (remote) storage devices” are the same as for the “access controls” term, i.e., whether a device’s access is limited according to the map *for the device*. *See* Defs.’ Objections [#110] at 8 n. 13. The Court construes these claim phrases consistently with “access controls.”

8. “allow(ing) access . . . using NLLBP”⁸

The Special Master recommended this phrase be construed as: “permit access using the native low level, block protocol of the virtual local storage without involving a translation from high level network protocols to a native low level block protocol request.” This construction is consistent with the Court’s construction in the *3Par* Litigation. Prior to the *3Par* Litigation, the Court construed “allow access” and “NLLBP” separately in the *Dot Hill* Litigation. During the Reexamination, Crossroads distinguished the invention of the ’035 Patent from the prior art in part because the prior art disclosed servers that “allowed access” to storage by using protocols that included high level file system commands that the server translated into NLLBP requests to access storage (i.e., high-to-low level translation), informing what it means to “allow access . . . using NLLBP.” *See supra* Part II(B)(1). After the Reexamination, in the *3Par* Litigation, the defendants proposed “allow access . . . using NLLBP” be construed so that the “allowing of access” occurred “without . . . translation from one protocol to another.” *See Report & Recommendation* [#167-1] at 10, the *3Par* Litigation. Crossroads proposed the following definition: “Permit or deny reading or writing of data using the NLLBP of the Virtual Local Storage without involving a translation from a high level file system command to a native low level, block protocol request.” *Id.* Special Master Bayer sided with Crossroads, recommending the following modified construction: “Permit or deny access using the NLLBP of the Virtual Local Storage without involving a translation from high level

⁸ The disputes with respect to the phrases “control access from the [at least one] device . . . to the [at least one] remote storage device . . . using native low level, block protocols according to a map,” “implement access controls according to the configuration for storage space on the storage device using native low level block protocols,” and “processing native low level block requests directed to the identified LUNs from the device to allow access to the storage space associated with the identified LUNs” are the same as for the “allow(ing) access . . . using NLLBP” phrase, i.e., whether a device’s access is limited by limiting the *routing* of NLLBPs. *See* Defs.’ Objections [#110] at 8 n.14. The Court construes all of these phrases consistently.

network protocols or file system protocols to a native low level block protocol request.” *Id.* The parties did not object to the Special Master’s recommendation, and the Court adopted it. *See Markman Order* [#179] at 7, the *3Par* Litigation.

Here, Defendants object to the construction proposed by Crossroads and recommended by the Special Master, which is essentially the same as the one adopted by the Court in the *3Par* Litigation, and propose: “to allow native low level block protocol requests to be routed from the [devices/Fibre Channel Initiator Devices] to the remote storage devices.” The Court identifies two problems with Defendants’ proposal. First, Defendants try to include the “routing” limitation previously discussed above in Part II(B)(1) in the context of the term “storage router.” By including this limitation, Defendants appear to be attempting to rule out any translation, but as already discussed, the patentee did not disclaim all translation in the Reexamination. Instead, the patentee disclaimed high-to-low level translation. That limited disclaimer is reflected in the Special Master’s current recommendation to the Court. In contrast, Defendants’ proposal rules out translation altogether and is therefore inappropriate.

Second, the two parties’ constructions for “allowing access . . . using NLLBP” differ in that Defendants focus on allowing NLLBPs be routed from the workstations to the remote storage devices while Crossroads more relevantly focuses on how the invention allows access, i.e., by using the NLLBP of the virtual local storage without involving a high-to-low level translation. The specification describes how the storage router controls the virtual local storage each workstation sees as its local drive, and because the virtual local storage appears as local storage, the workstation will access the virtual local storage using the NLLBP of the virtual local storage. *See* ’035 Patent, col. 4 ll. 44–57, 24–26. After a workstation sends a request for access to the virtual local storage using

the NLLBP associated with the virtual local storage, the storage router can process the requests according to the NLLBP of the virtual local storage to allow access to permitted storage. As such, the storage router allows access using the NLLBP of the virtual local storage.

In contrast, the specification describes the prior art network server which provided access to remote storage devices using “network protocols that the server must translate into low level requests to the storage device.” *Id.* col. 1 ll. 51–56. Specifically, workstations accessed data “only through high level file system protocols” which were then translated into low level requests to storage devices. *Id.* col. 3 ll. 17–34. Unlike the prior art, an inventive aspect of the ’035 Patent is that “storage access involves native low level, block protocols and does not involve the overhead of high level protocols and file systems required by network servers.” *Id.* col. 5 ll. 1–5. In other words, the storage router receives NLLBP requests from workstations rather than network protocol requests and can permit access using the NLLBP “without involving a translation from high level network protocols to NLLBP requests.”

Relatedly, while the specification describes a difference between the invention and the prior art with respect to how the workstations were allowed access, the specification also indicates there is no difference between the invention and the prior art regarding the mechanism for actually accessing the storage devices. According to the patent, the prior art network server of Figure 1 “uses a SCSI bus **18** as a storage transport medium to interconnect with a plurality of storage devices **20”** and “communicates with storage devices **20** via native low level, block protocols.” *Id.* col. 3 ll. 6–9, 21–22. Likewise, the storage router **56** of the ’035 Patent in Figure 3 communicates with storage devices 60, 62, and 64 via a SCSI bus. *Id.* cols. 3–4 ll. 64–6. In other words, both the prior art and the invention access the storage devices by way of an NLLBP request. With these differences and

similarities in place, it becomes clear that when the patent states “[s]torage access involves native low level, block protocols and does not involve the overhead of high level protocols and file systems required by network servers,” it is not referring to how the storage router actually physically accesses the remote storage devices. Instead, the statement implicates how the storage router allows hosts to have access to storage. Defendants’ proposal, which focuses on allowing NLLBPs to be routed to the remote storage devices, does not account for what differentiates the invention from the prior art and does not helpfully inform the meaning of “allowing access . . . using NLLBP.”

The Court ACCEPTS the Special Master’s recommendation, and OVERRULES Defendants’ objection.

9. **“for a device connected to the first transport medium, identifying LUNs for storage space allocated to that device in the map; presenting to that device only the identified LUNs as available storage space; and processing native low level block requests directed to the identified LUNs from that device to allow access to the storage space associated with the identified LUNs”**

Defendant NetApp argues claim 1 of the ’311 Patent is indefinite.⁹ The Special Master recommended construction of these claims is unnecessary. Specifically, NetApp argues claim 1 of the ’311 Patent “recites method limitations in an apparatus claim, infusing ambiguity as to the scope of the claimed invention and rendering the claim (and its dependent claims) invalid as a matter of law under 35 U.S.C. § 112, ¶ 2.” NetApp’s Additional Opening Claim Construction Br. [#69] at 1.

The standard for “indefiniteness” is whether “[the] claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus v. Biosig Instruments Inc.*, 134 S. Ct. 2120, 2124 (2014). A claim that mixes statutory classes of subject matter—such as reciting both an

⁹ NetApp is the only defendant Crossroads sued based on infringement of the ’311 Patent.

apparatus and a method for using that apparatus—is indefinite because a person of ordinary skill in the art cannot determine when infringement occurs. *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005). While an apparatus claim is not indefinite when it merely describes capabilities rather than a required method of use, apparatus claims are indefinite if they have elements directed to “user actions, not system capabilities.” *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1318 (Fed. Cir. 2011). Such claims are indefinite because they fail to clearly convey to the public when infringement occurs, i.e., when then the system or apparatus is created or when the method step is performed. *IPXL*, 430 F.3d at 1384.

For example, in *IPXL*, the claim at issue read:

The *system of claim 2* [including an input means] wherein the predicted transaction information comprises both a transaction type and transaction parameters associated with that transaction type, and *the user uses the input means* to either change the predicted transaction information or accept the displayed transaction type and transaction parameters.

Id. The court found it was “unclear whether infringement of [the above claim] occurs when one creates a system that allows the user to change the predicted transaction information or accept the displayed transaction, or whether infringement occurs when the user actually uses the input means to change the transaction information or uses the input means to accept a displayed transaction.” *Id.*

Here, NetApp argues claim 1, which is an apparatus claim, is indefinite because it incorporates method limitations found in claim 16, which is a method claim. Claim 1 recites, in relevant part:

A storage router for providing virtual local storage on remote storage devices, comprising:

...

a processing device coupled to the first controller, wherein the processing device is configured to:

...

control access from the devices connected to the first transport medium to the storage space on the remote storage devices in accordance with the map and using native low level block protocol, further comprising:
for a device connected to the first transport medium, identifying LUNs for storage space allocated to that device in the map;
presenting to that device only the identified LUNs as available storage space; and
processing native low level block requests directed to the identified LUNs from that device to allow access to the storage space associated with the identified LUNs.

'311 Patent, col. 9 ll. 34–64. NetApp argues the limitations following the “further comprising” phrase (i.e., identifying, presenting, and processing) recite the method steps of claim 16, and therefore claim 1 is both an apparatus and a method claim. According to NetApp, the patentee recited both a structure and the use of that structure, creating an ambiguity that fails to inform with reasonable certainty those skilled in the art about the scope of the invention as required by *Nautilus*.

The parties agree the relevant question is whether the “identifying, presenting, and processing” clauses describe user actions or, instead, describe capabilities of the apparatus. While NetApp is correct there is identical language from method claim 16 used in the apparatus claim 1, the language is used differently and, in the Court’s view, describes capabilities rather than user actions. The structure of claim 1 provides for “a storage router . . . comprising . . . a processing device . . . configured to . . . control access, [the controlling access] further comprising . . . identifying . . . presenting . . . and processing” The “identifying, presenting, and processing” clauses are functional capabilities of “controlling access,” which is a configuration of the processing device, which is a component of the storage router. They are not user actions.

Cases where the Federal Circuit has found the presence of user actions demonstrate why the “identifying, presenting, and processing” clauses are not examples of user actions. In *LXPL*, the claim held to be indefinite explicitly stated “the user uses the input means . . .” in the middle of an apparatus claim. *LXPL*, 430 F.3d at 1384. In *In re Katz*, the claim held to be indefinite covered an “interface means for providing automated voice messages . . . to certain of said individual callers, wherein said certain of said individual callers digitally enter data.” *In re Katz*, 639 F.3d at 1318. Again, the claim explicitly described user action. Claim 1 of the ’311 Patent, on the other hand, does not include a description of any user taking any action.

NetApp relies on *HTC Corp. v. IPCom GmbH & Co., KG*, 667 F.3d 1270 (Fed. Cir. 2012).

The claim at issue in *HTC Corp.* was structured as follows:

A mobile station for use with a network including a first base station and a second base station that achieves a handover from the first base station to the second base station by:

[six functions: storing, holding, maintaining, causing, deleting, and freeing up resources], the mobile station comprising:
[structure].

Id. at 1274.

The Federal Circuit reversed the district court and held the claim valid, but noted in dicta (now relied upon by NetApp) that “[t]he claims would read in a disjointed manner if they were to recite the mobile station in the first paragraph, modify the mobile station with the six enumerated functions, and then, without a transition, recite the mobile station again in paragraph 7, followed by yet another modifier.” *Id.* at 1275. In other words, the “disjointed” version would read “the mobile station comprising [six functions], the mobile station further comprising the [structure].” NetApp contends claim 1 of the ’311 Patent “reads in exactly the ‘disjointed’ manner outlined” in *HTC Corp.*

NetApp's Additional Opening Post-*Markman* Br. [#88] at 4. Claim 1, however, plainly does not have that structure. In other words, claim 1 does not recite the storage router and then "without transition, recite the [storage router] again . . . , followed by yet another modifier."

In sum, the Court finds claim 1's elements are directed to system capabilities rather than required methods of use or user actions. The claim conveys to the public when infringement occurs and is not indefinite. The Court ACCEPTS the Special Master's recommendation, and OVERRULES Defendants' objection.

Conclusion

The parties' objections to the Special Master's recommended constructions are OVERRULED, and the Special Master's recommended constructions are ACCEPTED. Additionally, the Court adopts each of the constructions agreed to in the parties' stipulation. *See* Stipulated Definitions of Claim Terms [#81].

Accordingly,

IT IS ORDERED that Plaintiff Crossroads Systems, Inc.'s Objections [#111] are OVERRULED;

IT IS FURTHER ORDERED that Defendants Dot Hill Systems Corp., Oracle Corporation, Huawei Technologies Co. Ltd., Huawei Enterprise USA, Inc., Huawei Technologies USA, Inc., Cisco Systems, Inc., NetApp, Inc., and Quantum Corporation's Objections [#110] are OVERRULED; and

IT IS FINALLY ORDERED that the Report and Recommendation of the Special Master [#105] is ACCEPTED.

SIGNED this the 15th day of June 2015.


SAM SPARKS
UNITED STATES DISTRICT JUDGE